OREGON STATE UNIVERSITY
COMPUTER CENTER NEWSLETTER

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JEFF BALLANCE APPOINTED HEAD OF OPERATING SYSTEMS DEVELOPMENT

Jeff Ballance was recently appointed as the manager of the operating systems development group. Members of this group are responsible for maintaining and extending the OS-3 time-sharing system. They initiate any operating system changes and are conducting studies on the performance and efficiency of the OS-3 system by using simulation programs which are currently being developed. If you have any suggestions or questions about the OS-3 system, contact Jeff Ballance at extension 2494.

SPECIAL FORMS CHANGES

With rising paper costs, the Computer Center will start charging extra for any forms other than the regular 11 x 14 one-part paper form. In addition to the $1.00 forms-handling charge already in effect, users will be charged for multi-part or special paper forms as of April 1. Additional charges will be calculated by subtracting the cost of the regular 11 x 14 one-part paper from the cost of the special forms. Details of the charges for special forms will be published and circulated before April 1.

CONFERENCE ON COMPUTERS IN THE UNDERGRADUATE CURRICULUM (CCUC-5)

The fifth conference on Computers in the Undergraduate Curriculum will be held June 24-26 at Washington State University in Pullman. Since this is the first CCUC to be held in the northwest, we hope that many computer educators will have the opportunity to attend. For registration materials, you may write to:

>Computer Science Department
>Washington State University
>Pullman, WA 99163

CONDUIT NEWS

Mini-hardwire tests are one aspect of the transport problem that CONDUIT is studying. Each CONDUIT school (OSU, Dartmouth, University of Iowa, University of Texas, NCECS, and associate member Northwestern University) has the capability to log into and run under another school's time-sharing computer system. The main purpose of the mini-hardwire is to enable teachers at OSU to look at and run the instructional computer programs in which they are interested before engaging in the expense of actually moving them to Oregon. If you are interested in making use of this facility in your area of teaching, contact Jo Ann Baughman at extension 2494.

Two new CONDUIT chemistry programs, CHEM32 and CHEM200, are now available on the OS-3 system. CHEM32 is a simulated experiment in reaction kinetics in which the rate of reaction is followed spectrophotometrically.

CHEM200 is a simulation in which the student collects data and calculates the molar weight of an unknown compound and then determines its molecular structure.

Both programs were written by Dr. Lagowski at the University of Texas in Austin and were transported to OSU through CONDUIT. OSU user documentation is complete. For information about using this program, contact Jo Ann Baughman or Janis Hubbert at extension 2494.

WORKSHOP IN GAMING AND SIMULATION FOR SOCIAL STUDIES TO BE HELD AT OSU APRIL 13, 1974

A workshop in gaming and simulations for Social Studies sponsored by the OSU Center for Economic Education in cooperation with CONDUIT/Oregon will be held at Oregon State on Saturday, April 13. The same games and simulations will be played at Portland Community College in conjunction with the Metropolitan Social Studies Conference on Saturday, April 20.

The conference registration fee is $5.00 and will be open to any secondary, college, or community college teachers in the northwest who can find the gasoline to get them to Corvallis or Portland.

Ze'ev Orzech of the OSU Department of Economics will lead the two sessions in the use of computer simulations in economics and social sciences. The data sets he will use in part of his sessions are from the CONDUIT Social Science data bases compiled by the University of Iowa. In addition, computer games and simulations will be demonstrated. Games and simulations used in other sessions will not be computerized, however.

For more information about the conference, readers may contact Ms. Charlotte Harter, Center for Economic Education, Oregon State University.

HUNTER AND BAUGHMAN TO PARTICIPATE IN EDUCOM CONFERENCE

Dr. Larry Hunter will participate on a panel for the EduCom Spring Conference to be held in April. The CONDUIT Executive Board will meet in conjunction with the EduCom Conference in St. Louis. Dr. Hunter will deliver a talk on the NSF CONDUIT project and its activities during the past year.

Mrs. Jo Ann Baughman, OSU CONDUIT Curriculum Coordinator, will participate on a panel at the same conference, speaking on some of the problems involved in training faculty to use the computer in instruction.

*ASSEM

A new version of *ASSEM has been released. A TEXT pseudo-op has been added. It is similar to the BCD pseudo-op except the assembler will count the number of words (or characters if ",C" has been specified) that the message will consume. The message is delimited by any non-blank character, two consecutive occurrences of the delimiting character is taken to be one occurrence of the character in the message.

Examples:

TEXT	'THE ''MESSAGE'''	(the delimitor is a ')
Equivalent to:		
BCD	4,THE 'MESSAGE'	
TEXT,C	/ABCDEF/	(the delimitor is a /)
Equivalent to:		
BCD,C	6,ABCDEF	

*SUMMARY

A new version of *SUMMARY has been released. Besides the I (input) and O (output) parameters, it now has an F parameter, which can be used to specify the number of consecutive file marks that will cause *SUMMARY to stop reading the input. The default value for "F" is 32767, except for magnetic tape where the default value is 2. If *SUMMARY terminates because it has read (F) consecutive file marks, it prints (...) instead of (EOD). For example, if lun 20 is a file or magnetic tape, the control statement *SUMMARY,I=20/R,F=3 might produce the output

```
     1  BCD
    12  BIN
     2  FM
    30  BCD
     3  FM
   ...
```

*LPLABEL

A new version of *LPLABEL has been released. Most of the special characters on the mod 33 teletype are now recognized and displayed

in "large" format. The ampersand and "at" symbol are displayed
as question marks. To use *LPLABEL,

    type #*LPLABEL,<lun>/<message>/<message>/<message>
    etc.

*LPLABEL will print up to seven lines per page of large messages.
Each message can contain a maximum of 13 characters.

MANUALS AVAILABLE

Available in Computer Center room 138:

ccm-70-7R	OS-3 Editor Manual, January, 1974
ccm-70-8R	OS-3 Reference Manual for OS-3, Version 4.3, July, 1973
ccm-73-03	FORTRAN Programming on the CDC 3300 Under OS-3, July, 1973
ccm-73-04	FORTRAN Reference Manual, August, 1973

Available from the OSU Bookstore:

    Statistical Interactive Programming System (SIPS) Users
    Reference Manual, Technical Report #36 by D. Guthrie, C.
    Avery, and K. Avery, Department of Statistics, May, 1973

TELETYPE AND BATCH UTILIZATION

	December, 1973		January, 1974	
Batch Logons		5964		8225
Teletype Logons		20496		27085
Total TTY Console Hours		4160		6040
Total CPU Hours		107.47		175.25
Batch CPU Sec.	80393.25		117972.84	
TTY CPU Sec.	306515.25		512929.74	
OS-3 Hours		455		455
Average Number of				
Console Users		9.1		13.3
CPU/Hour/TTY Users		73.7		84.9

COMPUTER INSTRUCTIONAL TIME USED, FALL TERM 1973

Agriculture	$ 495.44
Business and Technology	5,532.05
Education	208.84

Engineering

Ag Engineering	0	
Chemical Engineering	$2,051.64	
Civil Engineering	453.32	
Electrical and Computer Engineering	1,127.36	
Industrial and General Engineering	1,892.08	
Mechanical and Met. Engineering	1,048.37	
Nuclear Engineering	1,217.11	
Total		$7,789.88
Forestry		1,099.72
Health and PE		0
Home Economics		12.53

College of Liberal Arts

Anthropology	16.67	
Economics	0	
Political Science	222.19	
Psychology	88.21	
Sociology	0	
Speech	0	
Total		237.07
Oceanography		0
Pharmacy		0

College of Science

Atmospheric Sciences	108.11	
Botany	0	
Chemistry	492.83	
Computer Science	7,300.58	
General Science	0	
Geography	0	
Geology	0	
Math	1,008.90	
Physics	359.46	
Statistics	5,978.83	
Zoology	279.16	
Total		15,527.87
Experimental College		14.81
GRAND TOTAL		$31,008.21

THE OS-3 ARAND SYSTEM, VOLUME III

The third volume of documentation on the time series analysis system at OSU is being typed and will be completed soon. The following paragraphs summarize major developments and additions.

Introduction

The OS-3 ARAND system is a package of (primarily) FORTRAN subroutines and main programs performing a variety of types of time series analysis, along with fairly comprehensive graphics support routines. The system is modular in design with the subroutines comprising computational or graphics "blocks" and with the main programs conversational in nature, supporting a relatively common computational problem or streamlining a fairly complex one.

Each volume has introduced a number of new routines and thereby analysis capabilities, and the now approximately 100 routines and the numerous analysis techniques supported are best surveyed by scanning the "analysis capabilities" section of Volume II and the "new analysis" section that follows. The latter indicates additions documented in Volume III, while the former section describes cumulative analysis capabilities of the previous two publications. In addition, one sentence abstracts, listed alphabetically by program name are presented at the close of each report and provide a fairly concise overview of the system.

No fundamental changes in the organization of the ARAND system have occurred since Volume II was published; and hence, the "Programming Considerations" section of either of the previous two volumes are still appropriate.

Nearly all of graphics routines documented in Volumes I and II have been rewritten to, first of all, remove the confusion of plotting routines and of plot drivers existing in the ARAND system, and second, to take advantage of the flexibility of the graphics support software entitled "COMPLOT", recently developed by Larry Hubble and Jeff Ballance.

These plot drivers allow for single device or simultaneous plotting on the Calcomp plotter and the Tektronix graphics terminals (series 4002 or 4010) and have made it possible to discontinue the development of two parallel sets of graphics subroutines—one for the Calcomp, the other for the "Tek" terminals. The graphics terminal routines, those whose subroutine names begin with the letter "T", have been replaced by a call to the appropriate multi-device routine with the plot type appropriately set. Current conventions for setting the logical unit number parameter in all ARAND graphics routines are:

8.

$$
LUN \begin{cases} <0 & \text{Graphs are produced on both the Calcomp plotter} \\ & \text{and the graphics terminals. The Calcomp plot} \\ & \text{will be sent to logical unit number -LUN.} \\ =0 & \text{Only a graphics terminal plot is produced.} \\ >0 & \text{A plot is constructed on the Calcomp device} \\ & \text{only, using LUN for a logical unit number.} \end{cases}
$$

If LUN≠0, then |LUN| must be a valid logical unit number. In addition, if the plot is to be composed on a series 4010 Tektronix terminal, then it is the user's responsibility to make the appropriate CALL TK4010 prior to the call to ARAND routine. Please refer to the "Utilities Routines" section, Volume III, following the program documentation for more details concerning the COMPLOT drivers.

"Old" plot routines have now been altered to produce Calcomp plots of dimensions 11" x 8" and Tektronix terminal plots, 8" x 6". When LUN<0, the Calcomp plot will be the full size, 11" x 8", and the graphics terminal version will be scaled down to fit on the screen. This scaling reduces the size of the alphanumeric information rendering them somewhat more difficult to read at times, especially on the 4010 series machines. Recently developed plotting routines produced variable size graphs, allowing a partial resolution to this problem.

For the convenience of those that have plotting routines that use the old Calcomp drives, i.e., make calls to AXISXY, SAXES, LABEL, and PLOTXY, the authors of COMPLOT have included a conversion routine that translates calls to the older drivers into the appropriate calls to the COMPLOT routines. Simply load your binary decks with L=*ARAND. This library now contains the COMPLOT routines.

New Analysis Capabilities

Frequency Domain Analysis Additions

A couple of routines have been included that compute power spectra, this time via the direct method and using a fast Fourier transform algorithm. Both FFTSPC and TIMSPC follow this pattern, allowing for Hanning of the Fourier coefficiencts prior to finding the modules squared divided by the record length. In addition, a triangular spectral window can be applied to smooth the spectrum estimates. The smoothing routine is named TRISMO and performs its task with relative efficiency by a recursive approach. This computational approach is certainly not new, but was included primarily for completeness.

The TIMSPC program is designed to compute power spectra from segments of a long time record, and these can be examined for "time varying" properties with either a profile plot routine (PROPLT) or any of the many contour plotting routines available.

Final additions in the area of frequency domain analysis: 1) GRAPH computes and plots estimates of the gain and phase of a linear system from power and cross spectra determined from input-output records via the tapered auto and cross correlation route. The gain and phase functions are plotted with approximate confidence intervals, 2) CONFID1 funds the multiplicative factors necessary to determine confidence intervals for power spectra found by averaging short modified periodograms as in FOUSPC1 and FFTPS (Volume II).

Some Modeling Routines Have Been Included

By far the most significant addition appearing in Volume III, the ARAND system now provides modeling capabilities along the lines presented in Time Series Analysis, Forecasting and Control, by G. E. P. Box and G. M. Jenkins.

The computational components USID, USPE, USES, and USFO provide for model identification, preliminary and final parameter estimation, diagnostic checking, and forecasting with the seasonal-nonseasonal autoregressive-integrated-moving average class of models. Support graphics include plotting original and differenced data, auto and partial autocorrelation graphs with large lag standard error designations for assessing when these sample functions have essentially damped to zero, plots of the residuals and their sample autocorrelation function, and finally plots of forecasts with upper and lower probability limits.

Since the computational subroutines cited above are not easy to use, a series of three conversational routines have been written to speed up and smooth out the complex programming details in the modeling procedure.

As a logical adjunct to the modeling routines, programs that collectively produce observed time series based on the auto-regressive-integrated moving average processes appear in Volume III. Thus one can conduct series generation-modeling-simulation experiments with these capabilities.

CLASS MANUALS AT BOOKSTORE

Professors needing Computer Center manuals as texts for classes should make arrangements with the Bookstore to have them ordered. Please do not send students to the Computer Center to pick up manuals.

10.

NEW OFFICES

Individuals needing applications for job numbers or manuals should
see Milli Wohlers in her new office, room 138. Questions regarding
invoices should be directed to Dee Kolarik now in room 140.

NEW BUILDING HOURS FOR THE COMPUTER CENTER

Building hours have been changed to coincide with computer
operating hours. The new hours are as follows:

    Open: 7:15 a.m. Monday through Saturday
             1:00 p.m. Sunday

    Close: 2:00 a.m. Monday through Friday
            5:30 p.m. Saturday and Sunday

Oregon State University
Computer Center
Corvallis, OR 97331

ADDRESS CORRECTION REQUESTED

OREGON STATE UNIVERSITY
COMPUTER CENTER NEWSLETTER

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CONSULTING DESK

The spring term hours for the consulting desk have changed to:

1:00 - 1:30 p.m. 2:30 - 4:30 p.m.	Monday, Wednesday, Friday
1:00 - 4:30 p.m.	Tuesday, Thursday

The consulting service is open to both faculty and student users and is located in the viewing room (208). The telephone number is extension 1650.

TELETYPE AND BATCH USAGE

	February, 1974		March, 1974	
Batch Logons		14031		10584
Teletype Logons		39999		37686
Total Billable CPU Hours		190.56		219.50
Batch CPU Seconds	111447.36		168917.41	
TTY CPU Seconds	574584.73		621299.76	
OS-3 Hours		411		455
Average No. of Console Users				
Weekdays		39		41
Saturdays		23		25
Sundays		26		31

During February, 27,748 instructional jobs were run with an average CPU time per job of five seconds. During the same time period, 14,993 research jobs were processed with an average time of 40 seconds per job. The period of heaviest system usage continues to be from 2:00 - 4:00 p.m. daily with an average traffic of 56 users.

HONEYWELL REMOTE BATCH TERMINAL AVAILABLE

Honeywell has loaned a remote batch terminal to the Computer Center for 90 days. The terminal can access Honeywell's 6000 series computer in Minneapolis. Honeywell is also opening a new data center in Portland in May. This terminal is now available for testing and bench marks. A limited amount of time for testing has been allotted by Honeywell. Production usage is on a charge basis. For more information on how to use this terminal, users may contact Jeff Ballance, extension 2494.

CALLS TO I/O ROOM

All calls to the I/O area for terminal hookup should be made to
extension 2033. Other calls of a longer duration should be made
to extension 2494.

SPRING SCHEDULE OF COMPUTER CENTER VIDEOTAPE SERIES

The "Introduction to OS-3" and the "Introduction to FORTRAN"
videotapes will be shown beginning Monday, April 22. Any student
or faculty member may attend the showings. The tapes will be
shown twice a day on cable TV (channel 5) and in Kidder 108J on
campus at 3:30 p.m. and 10:00 p.m.

The schedule is:

Introduction to OS-3

April 22, 23, 24	3:30-4:30 p.m.
April 25	3:30-5:30 p.m.
April 22, 23, 24, 25, 29	10:00-11:00 p.m.

Introduction to FORTRAN

April 29, 30, May 1	3:30-4:30 p.m.
May 2	3:30-5:30 p.m.
May 6, 7, 8	3:30-4:30 p.m.
May 9	3:30-5:30 p.m.
April 30, May 1, 2, 6, 7, 8, 9, 13, 14, 15	10:00-11:00 p.m.

SIPS NEWS

Corrections (typographical and clarifications) have been made
to the new edition of the SIPS Users Reference Manual (originally
dated May, 1973). Currently held copies can be corrected by
obtaining errata sheets available from the Computer Center
(room 138) and the Department of Statistics.

An entirely new sub-system has been added to do many of the
standard computations of the Analysis of Variance section.
An addendum is available from the Computer Center (room 138)
and the Department of Statistics to explain this new sub-system
and other additions and improvements.

SIPS questions should be referred to Michel Lejeune, the SIPS
statistics consultant, in Kidder Hall, 113Q, extension 1929.

NEW VERSION OF *ASSEM NOW AVAILABLE

A new version of *ASSEM (the experimental version of the OS-3
assembler) has been released. An ASCII pseudo-op has been added,
and it is of the form:

        ASCII,<n> <expression>,<text>

where <n> is the number of ASCII characters to pack per word.
(1, 2, 3, and 4 are legal; if 4 is specified, then 40B is sub-
tracted from the ASCII code for the character in order to make
it fit in six bits.) If ",<n>" is omitted, then ",2" is assumed.
<Expression> is the number of words to assemble, and <text> is the
string of characters to convert to ASCII (<n>*<expression> char-
acters are converted). In all cases except <n>=4, the ASCII
codes generated have even parity.

Examples:

        ZOT[1]   ASCII   4,**OVLIST   (2*4 CHARS.)
                     ASCII,3   3,THIS IS A TEST   (9 CHARS.)
                     ASCII,4   2,I=50,O=2   (8 6-BIT CHARS.)

    1) NOTE: ZOT is defined as the first of four words.

The "I" field is now legal in VFD's. As in COMPASS, this generates
ASCII codes. The field width must be a multiple of eight bits.

Example:

        VFD   I24/ABC,I32/TEST

This also generates even parity ASCII codes as does the
<number>K<string> and K "<string>" constructions.

NEW VERSION OF PAL AVAILABLE ON PDP-8

A new version of the PAL (Program Assembly Language) is now
available on the PDP-8.

VARIABLE DIMENSIONING OR CONVERTING TO A LINEAR ARRAY

Programmers can now use variable dimensioning logically or can
logically define arrays to have N dimensions. The function
described in the Computer Center Newsletter, Volume VI, Number 5,
page 7 has been revised to handle character and real arrays.

The function may be called by one of the following names:

integer array	ICTSS or IIALS
real array	IRALS
character array	ICALS

The function exists on public file *ICTSS in binary form.

If you have any questions, please contact Les Richey, extension 2494, OSU Computer Center.

STUDENT GRADE REPORTER PROGRAM AVAILABLE

The Student Grade Reporter (SGR)[1] is a computer program designed to record, summarize, and report grades on a periodic basis. The chief purpose of this student-oriented system is to provide the student with a frequent and accurate feedback on his class performance throughout the term. This can be accomplished with less time and effort for the instructor than with conventional record-keeping systems.

The SGR program can handle up to five different types of scores (quizzes, problems, exams, etc.) with up to six scores of each type. Each type of score can be weighted according to any scheme the instructor may choose. SGR will accommodate excused absences; it will also drop the one or two lowest scores within each type if the instructor so desires. The program is presently designed for classes of up to 200 students.

Any persons interested in using this program should contact Jo Ann Baughman or Dave Fuhrer at extension 2494.

#COPY,I=*SYSNEWS

For the purists, new information on the *SYSLIB can be obtained on the teletype by typing #COPY,I=*SYSNEWS. A *SYSLIB manual is available in the Math/Computer Science Office for 55¢. All

---

1. This program was developed at Purdue University by W. D. Downey, Department of Agricultural Economics. See W. D. Downey and R. W. Taylor, "Feedback for Students on Class Performance," American Journal of Agricultural Economics (November, 1969), pp. 946-947. It was revised and adapted at Oregon State University by Doyle Eiler, Research Assistant in Agricultural Economics.

the new features described in this manual have now been imple-
mented. Also, the $XL manual can be purchased in the Math/Computer
Science Office for 25¢.

USERS PLEASE RELEASE SOME FILE SPACE

We would like to encourage users to destroy any old or unused
files which they do not intend to use. These can be written on
magnetic tape, punched on paper tape or listed. The system
is running short of file space, so we would appreciate your
eliminating old data files or programs wherever possible.
Thanks!

Oregon State University
Computer Center
Corvallis, OR 97331

KEELING KENNETH
OCEANOGRAPHY

OREGON STATE UNIVERSITY
COMPUTER CENTER NEWSLETTER

Corvallis, Oregon
(503)   754-2494

Volume IX, Number 3
May/June, 1974

Director: Larry C. Hunter

Editor: Kay Porter

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CDC 3500 COMPUTER SYSTEM APPROVED BY OREGON LEGISLATURE

A proposal submitted for the upgrading of the OSU Computer Center computing equipment was recently approved by the Oregon state legislature. The new system is scheduled for delivery December 15, 1974.

The current Control Data Corporation (CDC) 3300 processor and memory will be traded in on the purchase of the CDC 3500 processor and memory under a five-year lease/purchase contract.

The 3500 has a CPU cycle time of .9 microsecond, an add time of 1.2 microseconds, and a .6 microsecond access time.

The 814 disk file acquired in 1968 will be replaced by two new 841 disk drives which will result in increased file space and performance. A second model 512 line printer will be added, thereby doubling the printed output capability. The 512 printer prints 1200 lines/minute. Other peripheral equipment will be the same as the current equipment: 98K core storage, five 854 disk storage drives, four tape drives, one card punch (250 cards/minute), one card reader (1200 cards/minute), a console, and the Calcomp plotter. The new system will continue to use the PDP-8 computer as a satellite communications processor.

The upgrading of the system was requested in order to alleviate the increased system usage. It has been more than four years since OSU has changed its computer configuration. During this time period, academic computing has increased more than 100%, a figure based on income figures for the 1969-70 and 1973-74 fiscal years. In fact, the average central processor time required per job has increased 30% over the past two years. The largest increase in demand has come from the research user with a 73% increase in the number of jobs processed and a 32% increase in the average CPU time required. The increased user load and shift toward more sophisticated uses has caused the 3300 system to become bogged, resulting in unreasonably long response times for the terminal users and longer turnaround time for batch users.

Statistics gathered on the 3300 and the OS-3 operating system show that the CPU becomes fully utilized with 25 users, i.e., there is always a user that can be run. During the 1973-74 school year, the average traffic, over the 18 1/2 hours per day that OS-3 is up, has been over 40. During the peak hours of 9:00 a.m. to 4:00 p.m. the traffic is generally in the upper 50's and 60's. It is not uncommon to see traffic of 70-75. This excess loading has severely limited the capability of OSU users in using the computer facilities for research and

has materially retarded the progress made on most research projects.

As with CPU usage, the average disk storage requirements have increased with the increased user sophistication. Disk storage requirements have increased approximately 30% overall and 70% for research applications. Currently, all of the on-line disk storage has been allocated. New jobs and applications must necessarily be severely limited.

The two 841 disks requested will replace the current 814 disk file which has been in service for over seven years. The 841's are much more reliable than the older disk. This fact is re-flected in lower monthly maintenance costs. The 814 is a single unit with no provision for degradation in the event of a hard-ware malfunction. When the 814 is down, the whole system must be down until repairs are made. The 841's are designed in a modular fashion including an extra unit such that it is easy to remove a malfunctioning unit, reconfigure and continue operation within a very few minutes.

The 841's requested will increase the on-line storage by 48% to 196,000 file blocks (2048 characters/file block). In addition, the data transfer rate is 83% faster than the 814. This increased speed will improve user response time by decreasing the time required for swapping users and doing file I/O. An average of 1200 disk transfers per minute or one transfer every 50 milliseconds is currently handled by the time-sharing system.

An additional printer was also requested, because the total amount of printing has increased by over 30% in the last two years. Currently, more than 8,000,000 lines are printed each month. With only one line printer, long print jobs severely impair the turnaround for batch output. Many times, batch turnaround is several hours due to the printer backlog. The second line printer will alleviate this situation and provide an alternative when a printer must be down for repairs. There are several times during the year when a line printer malfunc-tion could cause very serious delays, as during registration. The second line printer will provide the necessary backup and the increased throughput needed.

Benchmark runs of average job mixes have been conducted on the 3500 system with the OS-3 operating system and have shown that a 2 1/2 times increase in throughput can be expected. This would provide sufficient room to meet projected growth in com-puter usage over the next 1 1/2 to 2 1/2 years. It is expected that average traffic in that time will climb from 80 to 100 simultaneous users.

In summary, users of the OSU computing facilities will be bene-
fitted by lower cost per job, shorter turnaround, faster tele-
type response, and improved reliability.

It is expected that users will see an approximate 50% decrease
in the CPU cost to run a job as a result of the upgrade to a
3500 processor. This savings will allow the departments to
provide computer access to more student with the same dollar
expenditure. Research users will benefit not only from the
reduced cost, but also from the decrease in response times
for their interactive programs. This is a very important con-
sideration since many research groups have invested large
amounts of money in the development of interactive programs
which have greatly aided their work. However, long waits
between computer responses make these programs much less
useful and hamper the work being done.

The added line printer will reduce by more than one-half the
turnaround time for all batch users. Currently batch turnaround
is quite often four to six hours due to the backlog of printing.
The terminal users will see an equal reduction in the time
required to receive line printer output created from their
terminals. Scheduling of large print jobs will be possible,
insuring that normal output is not slowed as is currently the
case. The added reliability afforded by a second line printer
will be a great benefit during peak periods.

The increased mass storage will benefit users directly and
indirectly. New users and applications will not have to be
restricted as severely as at present. The indirect benefits
will come through faster disk I/O resulting in shorter re-
sponse times and greater reliability.

Since the new system will run with the existing OS-3 operating
system, no programming changes will be required in either user
or systems software programs.

COMPUTER CENTER ANALYZING COMPUTER USAGE DATA

Data has been collected by the Computer Center on the different
types of computer usage. The chart shown on the opposite page
shows the number of simultaneous users versus the time of day,
i.e., how many users are on the system during each hour of
the day. On weekdays, the number of users seems to peak
fairly consistently at 10 a.m., noon, 3-4 p.m. and 7-9 p.m.
during an average month.

TRAFFIC VS TIME 2-28-74
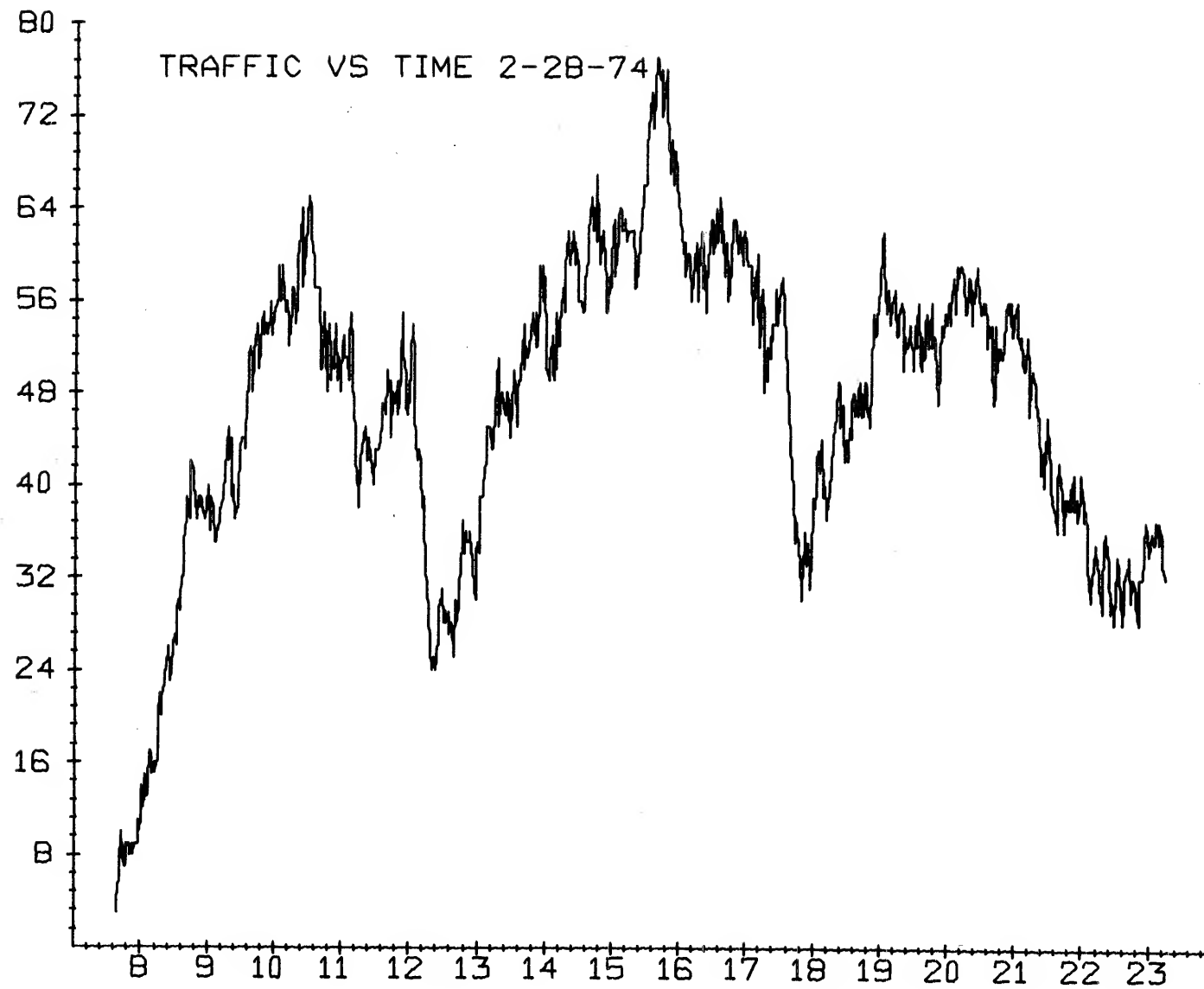
OPERATING STATISTICS FOR APRIL, 1974

Batch Logons		11596
Teletype Logons		35019
Totals TTY Console Hours		10275
Total CPU Hours		259.03
Batch CPU Seconds	233831.58	
TTY CPU Seconds	698686.12	
OS-3 Hours		441
Average Number of Users		
Month		32
Saturdays		19
Sundays		18
Weekdays		36
CPU/Hour/TTY User		68.0
Average Job Time (Seconds)		20.00

FACULTY WORKSHOP TO BE HELD SEPTEMBER 9-13, 1974

Oregon State University Computer Center will again sponsor a
faculty workshop September 9-13, 1974. The workshop is
intended for all who are engaged in undergraduate education,
including universities, four-year colleges, and two-year
colleges. The workshop will provide an opportunity for college
and teaching faculty to increase their skills related to the
use of the computer. It will provide a regional forum for the
presentation, discussion, and dissemination of ideas, programs,
and other curricular matters dealing with the use of the computer
integrated into the instructional process at the undergraduate
level. Those attending this workshop need not have a back-
ground in computers. An attempt has been made to meet the
needs of those with no background as well as those who have
used the computer in some way. The purpose of this workshop
is threefold:

1) To provide basic training in the development of
   computer skills in Fortran, Basic, Oscar, and the
   OS-3 time-sharing system.

2) To provide training in the development of user skills
   which will facilitate use of the computer within an
   academic area. These include the use of the
   plotter, files, *Catalog programs, Oscar, Basic,
   and Library programs.

3) To provide instruction and examples of the in-
   class use of computer curriculum modules in specific
   disciplines.

If you are interested in receiving more information or in attending this workshop, please return the form on page 11.

CENTER BUGGED BY 814 DISK PROBLEMS

On April 15, the seven-year-old 814 disk went bananas and had a major heart attack. The often-repaired internal wiring finally required replacing. The 814 disk currently accounts for 60% of the saved file space on the 3300 system.

After a couple of weeks of running at 40% of total disk capacity, the 814 was rewired with new cabling and put back into operation. Hopefully, it should live long enough to be replaced by its two new relatives, 841's, which will arrive as part of the new CDC 3500 system to be delivered December 15, 1974.

CCUC5

The Fifth Conference on Computers in Undergraduate Curricula will be held June 24-26, 1974 at Washington State University in Pullman.

The registration fee for faculty is $45 before June 7th and $55 after June 7th.

For a program and more information, users should contact the Computer Science Department, Washington State University, Pullman, Washington 99163 or phone (509) 335-5536.

NEW I/O ROOM PHONE NUMBER

The I/O room has a second phone number, extension 3584. Only those calls for the teletype hookup should be directed to 2033. All other calls to the I/O room should be directed to 3584.

CALCOMP PLOTTER HAS A NEW FELT-TIPPED PEN

A new felt-tipped pen is available for use on the Calcomp plotter. Colors of ink that can be selected are red, green, blue, and black.

For more information, users may call Glenn Wolfe at extension 3584.

EDUCOM CONFERENCE

The NSF CONDUIT Project, of which OSU is a part, received excellent coverage during the April 17-18 EduCom Conference held in St. Louis last month. Two panels, "CONDUIT, An Experiment in Dissemination and Exchange of Computer-Based Educational Materials" and "CONDUIT, Guides and Models for Solutions of Transport Problems" were held on April 17. Dr. Larry Hunter, Computer Center director, and Dr. Clifford Gray of the School of Business and Technology at OSU were panelists.

*SYSFLOW NOW AVAILABLE

*SYSFLOW is a program which will produce system flow charts from input written in the SYSFLOW language. For seven pages of detailed description regarding the use of *SYSFLOW, the user may submit a batch job consisting of the following cards:

```
7
8JOB,<job number>,<user code>    Save for <user's name>
7
8COPY,I=**SF,S=0
7
8LOGOFF
```

The description will be printed on the line printer. Any questions, comments, or bugs may be referred to Guy Lauterbach, CC 128, phone 754-2494.

PORTER'S LAST NEWSLETTER

After 6 1/2 years of serving as the Computer Center newsletter editor, this is my last newsletter. I will be leaving the Center as of June 30th and just wanted to say "bye" to the many friends and colleagues I have known since I came to OSU in September, 1967. I have always liked the people-side of computing best, and I thank you all for being special and for making my job so much more enjoyable. Bye y'all and take care!.......Kay Porter

STATEMENT OF INTEREST
FOR THE FALL COMPUTER INSTITUTE

Oregon State University
September 9-15, 1974

NAME _____ DATE _____

INSTITUTION _____

DEPARTMENT _____

SUMMER MAILING ADDRESS   _____
(if different)
                          _____
                          _____

For scheduling purposes, please indicate the sessions you would be interested in attending:

/_/ Beginning FORTRAN

/_/ Intermediate FORTRAN

/_/ Advanced FORTRAN

/_/ Beginning Plotting

/_/ Intermediate Plotting

/_/ SIPS A (use of SIPS in Statistics and Math)

/_/ SIPS B (use of SIPS in Social Science, Humanities, Education, and Economics)

/_/ SIPS C (use of SIPS in Biology and Physical Science)

/_/ Basic

/_/ Running Programs on the OS-3 System (EDIT)

/_/ OSCAR

/_/ DIALOG (CAI Language)

/_/ Grafit

/_/ DRAFT (Mechanical Drawing Language)

/_/ ARAND (Time Series and Numerical Modeling Tool)

/_/ GPSS (A Simulation Language)

/_/ Chemistry (CONDUIT Materials)

/_/ Mathematics (CONDUIT Materials)

/_/ Physics (CONDUIT Materials)

/_/ Biology (CONDUIT Materials)

/_/ Economics (CONDUIT Materials)

/_/ Business (CONDUIT Materials)

/_/ Accounting (CONDUIT Materials)

/_/ Social Science (CONDUIT Materials)

/_/ Political Science (CONDUIT Materials)

/_/ Psychology (CONDUIT Materials)

/_/ Other

Please return this form by July 15, 1974 to:

Jo Ann Baughman
Computer Center
Oregon State University
Corvallis, Oregon 97331

Jo Ann Baughman
Computer Center
Oregon State University
Corvallis, OR 97331

Oregon State University
Computer Center
Corvallis, OR 97331

ADDRESS CORRECTION REQUESTED

OREGON STATE UNIVERSITY
COMPUTER CENTER NEWSLETTER

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OSU EDUCATION MEDIA WORKSHOP

Oregon State University sponsored a Summer Multimedia Workshop and six weeks of follow-up activities for the development and production of instructional materials. The workshop and the follow-up activities are supported by the University Instructional Media Services. These are the Computer Center, CONDUIT/Oregon, Classroom TV and Instructional Resources and Materials Center.

The workshop was held the first two weeks of summer term, 1974, and was concerned with the development of skills for faculty which will better enable them to use the Media facilities available to them at Oregon State and to facilitate the development and use of the course materials during the coming year. The workshop concentrated on a systems approach to instructional design with emphasis on the independent learning processes. Learning systems considered were computer instruction, instructional television, auto-tutorial and individually-prescribed instruction. The training program also included instruction on the teaching/learning processes of specifying goals, writing course objectives, analyzing learning tasks, developing teaching/learning strategies and formulating evaluation procedures. The workshop was coordinated through the OSU Education Media Council under the Dean of Instruction, Stuart Knapp. Dean Osterman was the workshop coordinator.

COMPUTER CENTER FAIR--MINI-HARDWIRE

Throughout fall term, the Oregon State University Computer Center and CONDUIT will offer mini-hardwire fairs. These will provide you with an opportunity to observe the instructional materials and the system response offered by other computer centers throughout the United States. Universities which may participate in this mini-hardwire fair are the University of Texas at Austin, Dartmouth College, North Carolina Educational Computing Services, University of Iowa, University of Colorado at Boulder, Northwestern University, and University of Indiana.

The purpose of the fair is to present to the University Computer Center user community the availability, cost, and capabilities of other instructional systems and to present to them the instructional software that is available on other systems.

The fair will be held in the Computer Center conference room beginning in October. The specific date and time will be announced in the next newsletter. If you wish any additional information, please call the CONDUIT staff at extension 2494.

OSU COMPUTER CENTER ANNUAL SUMMER INSTITUTE TO BE HELD SEPTEMBER 9-13

The annual OSU Computer Center Summer Institute will be held September 9-13 at the Computer Center. This institute is open to any faculty member at OSU or another institution who uses or will be using

the CDC 3300 computer and the OS-3 system. There will be a registration fee of $12 to cover the cost of materials. Computer time will be provided.

This workshop will provide instruction and computer time in the following areas:

I. Computer Skills

    A. FORTRAN
    B. BASIC
    C. OSCAR
    D. EDITOR
    E. Plotting

II. Instructional Systems

    A. SIPS A - use of SIPS in statistics and math, biology, physical sciences
        SIPS B - use of SIPS in social science, humanities, education and economics
    B. GRAFIT - use of interactive graphics in instruction
    C. DRAFT - interactive mechanical drawing and drafting system
    D. GPSS - a simulation language
    E. ARAND - a modeling and prediction package applicable in oceanography, atmospheric sciences and physical chemistry

III. Instructional Programs in Academic Areas (If enrollment for an instructional program class is less than five, it may be cancelled.)

    A. Linear Algebra - CONDUIT math materials; computer-related problems and programs in linear and modern algebra
    B. Biology - CONDUIT programs; computer-related programs and problems in biology, ecology, and population growth
    C. Chemistry - CONDUIT programs; computer-related programs in general chemistry
    D. Accounting and Business - CONDUIT programs in accounting and business
    E. Political Science - use of CONDUIT Social Science data sets in political science
    F. Sociology, Psychology - use of CONDUIT Social Science data sets and simulation programs

To register for this workshop, please complete the registration form at the end of this newsletter and return to Summer Institute, Computer Center, Oregon State University, Corvallis, Oregon 97331. An attempt will be made to schedule courses to allow participants to take as many courses as they wish.

VICE-CHANCELLOR FOR EDUCATIONAL SYSTEMS: REX KRUEGER

The Oregon State System of Higher Education has appointed Dr. Rex Krueger as Vice-Chancellor for Educational Systems. He will be responsible for its planning coordination and development of computer services to meet the requirements of higher education. He will formally take office on August 1, but he has made several trips to Oregon and has already become involved with the responsibilities of his new position.

Dr. Krueger is from the University of Colorado where he has been Computer Center Director. His Ph.D. is in Physics, and he has been involved in computing activities for a number of years. He has been active in the Association for Computing Machinery, especially its Special Interest Group on University Computer Centers (SIGUCC), and has organized a very successful series of three-day seminars for computer center directors. The fifth of these seminars will be in Aspen, Colorado this August.

We welcome Dr. Krueger to Oregon, and we look forward to working with him on further development of computing services.

VICE-CHANCELLOR KRUEGER TO BE FEATURED SPEAKER

Dr. Rex Krueger will be the speaker at the annual fall Workshop Banquet Tuesday evening, September 10. Dr. Krueger is Vice-Chancellor for Educational Systems in the Oregon State System of Higher Education. He will discuss the responsibilities and job objectives of his position and plans for educational computing within higher education.

The banquet is open to any interested faculty. It will be held at Nendels Inn in Corvallis. If you have not already made reservations to attend and wish to do so, please contact Sue Mills at extension 2494.

BOOK REVIEW*

THE ELEMENTS OF PROGRAMMING STYLE by Brian W. Kernighan and P. J. Plauger, McGraw-Hill Book Company ($2.95)

This excellent little book offers 62 succinct rules for writing clear, concise, and correct computer programs. The rules are drawn from examination of programs taken from programming textbooks. Stylistic shortcomings of the programs are discussed, the programs are rewritten to correct these faults, and a conclusion or rule based on this development is presented.

The rules are developed in a simple and straightforward manner. At a glance, the rules by themselves might appear trivial, but the

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*   Article from the University of Texas at Austin Newsletter.

effect of applying the rules to "real" programs is remarkable. Under the author's treatment a complex, unwieldy, intractable, and even incorrect program is transformed from a beast into a beauty.

The example programs are written in FORTRAN and PL/I. Anyone even modestly familiar with one language or the other can follow each example. As noted in the text, application of these rules will improve programming in any language. It is only to allow a full appreciation for the development of the rules that a knowledge of FORTRAN or PL/I is required.

The book is nicely paced and very readable. Like the programs resulting from application of its rules, the book is clear and concise. This book would serve well as an adjunct to any beginning programming course. It will serve experienced programmers equally well to jar them from their bad habits. Anyone faced with working on an unfamiliar program will appreciate knowing that his predecessor had studied THE ELEMENTS OF PROGRAMMING STYLE.

HELP US RECYCLE COMPUTER PAPER

Everyone can help conserve our natural resources and fight the paper shortage by saving scrap paper and used data cards for recycling. Boxes are provided at all data centers for old listings and cards. Please do not throw your old output in the waste baskets!! Recyclable scraps must be free of rubber bands, paper clips, staples and any other binding material.

Your cooperation is solicited in our recycling program and will help us to obtain paper supplies to meet our future paper needs.

USERS PLEASE RELEASE SOME FILE SPACE

We would like to encourage users to destroy any old or unused files which they do not intend to use. These can be written on magnetic tape, punched on cards or paper tape or listed. The system is running short of file space, so we would appreciate your eliminating old data files or programs wherever possible. Thanks!

LET'S TRY TO CONSERVE PAPER

The Computer Center has begun to feel the effects of the paper shortage, and we ask all users to use the available paper wisely. The following suggestions are some of the ways users can help conserve computer paper:

1) Single space lines.
2) Print as much as possible on one page.
3) Use the full width of the paper whenever possible.
4) Print output in the form of matrices or rows of numbers instead of short rows of single numbers.
5) Be selective about what is printed, especially when using features such as source listings when no longer needed.

6) Print dumps only when you are sure that reading them will be possible and useful.

7) Be intelligent when program testing. Do not expect production output from your first test run. Avoid runaway printing of pages of zeros. It is a good practice to get a program working before worrying about the layout of results.

8) Put used computer cards and listings in the recycling boxes provided.

STANDARD EIGHT LINES PER INCH

In an effort to conserve paper the Computer Center will be changing to standard eight lines per inch on the line printer instead of the current six lines per inch. This change will occur about September 1. Users should make sure this change will not adversely affect their programs.

Users may obtain six or eight lines per inch spacing by using the special non-printing carriage control characters--S and T for six and eight lines, respectively.

NEW "*NEWS"

A new version of *NEWS has been released. Now *NEWS lets a person choose the subject matter. The control statement HELP,*NEWS will give details on the use of *NEWS.

*NEWS contains information on SORT (see below), on the system assembler ASSEM, on lists of files that contain information on certain routines, and on OS-3 rates and hours. The news will be kept up to date. If anyone has new material to be disseminated, please contact Robert Adams in Computer Center room 129.

NEW "PARA"

A new system parameter processor has been released. It now allows the input of numbers (decimal and octal) and character strings. For a manual on the new parameter processor, copy the file **PARA (specify shift of zero, e.g., COPY,I=**PARA,S=0).

NEW FEATURES IN *SORT

An experimental SORT has been released on *SORT and in the experimental FORTRAN library *LIBX. SORT now prints a message if a variable-length record is truncated. Also, if SORT is called as a subroutine, a user can do his own input for SORT and thus deblock input files without an intermediate pass.

Detailed information on new features can be found on *NEWS.

OS-3 SYSTEM CHANGES

A new version of OS-3 will be released about October 1 which will recognize an optional field on the job card. The current job card format is as follows:

$^7_8$JOB,<job number>,<validity code>,<optional output parameter>
        <comments>

This will be expanded to allow the following:

$^7_8$JOB,<optional queue destination>,<job number>,<validity code>,
        <optional output parameter>   <comments>

where the queue destination is one of the following mnemonics:

MT1
MT2   These queues are for jobs requiring one to four tape
MT3 - drives. A job must be placed in the queue for the
MT4   largest number of tapes required.

NITE - Jobs with this specification will only be run during
       the low-rate hours.

FAST - This queue is intended for jobs requiring less than 20
       CPU seconds and 25 scratch file blocks.

Terminal users may submit jobs to these queues by creating a TASK file and then using the SEND control mode command to direct it to the appropriate specially named queue (MT1, MT2, etc.).

An explanation of these procedures will be available on *NEWS prior to release of the new system.

The tape queues will allow for better utilization of the equipment and faster throughput for these jobs. Once a job has been submitted from a particular MT queue, the desired number of tape drives are reserved. The number reserved may be reduced by use of the control mode command TAPEMAX=n, where n is the new number of drives needed and is less than the current number reserved. NOTE: Tape jobs submitted in the regular batch and TASK queues will be aborted, i.e., tape jobs will be required to be directed to one of the tape queues.

OPERATING STATISTICS

	June	July
Batch Logons	5837	7071
Teletype Logons	27151	25366
Total TTY Console Hours	7797	7290
Total CPU Hours	220.77	232.26
Batch CPU Seconds	182170.31	203116.26
TTY CPU Seconds	612613.33	633008.38
OS-3 Hours	411	455
Average Number of Users		
Month	31	26
Saturdays	17	12
Sundays	20	13
Weekdays	32	28
CPU/Hour/TTY User	78.6	86.8
Average Job Time (Sec.)	24.09	25.78

INSTRUCTIONAL COMPUTER USE--SPRING 1974

Department	Amount
Agriculture	--
Ag. Economics	$ 140.49
Ag. Engineering	1,458.12
Anthropology	43.70
Atmospheric Sciences	579.95
Botany	--
Business Technology	5,483.82
Chemical Engineering	3,360.58
Chemistry	1,523.49
Civil Engineering	2,152.12
Computer Science	19,578.66
Economics	958.35
Education	313.02
Electrical Engineering	4,454.74
Entomology	--
Fisheries & Wildlife	2,091.70
Forestry	1,397.87
Geography	138.99
Geology	81.41
Home Economics	--
Industrial Education	19.00
Industrial Engineering	4,032.34
Institutional Management	--
Mathematics	1,296.51
Mechanical Engineering	3,167.50
Nuclear Engineering	3,265.62
Oceanography	256.44
Pharmacy	75.47
Physics	820.52
Political Science	463.58

Poultry Science	--
Psychology	91.41
Sociology	42.45
Statistics	10,231.49
Zoology	--
TOTAL	$67,519.34

PLATO WAS HERE

PLATO was demonstrated on Oregon State University campus August 13 by a team from the University of Illinois at Urbana.

PLATO is a computer-based teaching system which provides a means for individualizing student instruction. The teacher, the computer, and the students are all members of the interactive team. The teacher designs the instruction material and the computer presents this material to the students while monitoring and evaluating their performance. Each student can work at his own pace with access to special information and help when problems arise. Student interaction with the computer also provides information on lesson effectiveness. The lesson material can be easily revised by the teacher in order to modernize or improve instruction. PLATO frees the teacher for special work with students, an advantage which conventional teaching does not usually include.

COMPUTER CENTER HOURS FOR LABOR DAY WEEKEND

The Computer Center will be open Saturday, August 31, from 7:30 a.m. until 5:00 p.m., but the Center will be closed September 1 and 2. Regular hours will resume on Tuesday, September 3.

NEW JOB NUMBER CLERK

Milli Wohlers, our job number clerk, will be leaving us August 30. Please direct all questions concerning job numbers, Computer Center manuals, and payment of bills to Gayle Zandofsky after August 30.

COMPUTER CENTER SUGGESTION FORM

****

Date: _____

To improve service to me as a user of the services and facili-
ties of the Computer Center, it is suggested that you resolve
the following:

    PROBLEM(S)   SUGGESTED SOLUTION(S)

Each suggestion for improvement of services and facilities
is appreciated and will be considered. Please mail this form
to the Computer Center.

Signed _____

Address _____

Your signature is not necessary. Signed suggestions will
receive a reply from the Computer Center.

****

Return to: Ron Davis
      User Services
      Computer Center
      Oregon State University
      Corvallis, OR 97331

REGISTRATION
FOR THE FALL COMPUTER INSTITUTE

Oregon State University
September 9-15, 1974

NAME _____ DATE _____

INSTITUTION _____

DEPARTMENT _____

SUMMER MAILING ADDRESS _____
(if different)
_____

_____

For scheduling purposes, please indicate the sessions you plan to attend:

/_7 Beginning FORTRAN

/_7 Intermediate FORTRAN

/_7 Advanced FORTRAN

/_7 Beginning Plotting

/_7 Intermediate Plotting

/_7 SIPS A (use of SIPS in Statistics and Math)

/_7 SIPS B (use of SIPS in Social Science, Humanities, Education, and Economics)

/_7 SIPS C (use of SIPS in Biology and Physical Science)

/_7 Basic

/_7 Running Programs on the OS-3 System (EDIT)

/_7 OSCAR

/_7 DIALOG (CAI Language)

/_7 Grafit

/_7 DRAFT (Mechanical Drawing Language)

/_7 ARAND (Time Series and Numerical Modeling Tool)

/_7 GPSS (A Simulation Language)

/_7 Chemistry (CONDUIT Materials)

/_7 Mathematics (CONDUIT Materials)

/_7 Physics (CONDUIT Materials)

/_7 Biology (CONDUIT Materials)

/_7 Economics (CONDUIT Materials)

/_7 Business (CONDUIT Materials)

/_7 Accounting (CONDUIT Materials)

/_7 Social Science (CONDUIT Materials)

/_7 Political Science (CONDUIT Materials)

/_7 Psychology (CONDUIT Materials)

/_7 I do plan to attend the general session from 3-4 p.m. on September 9, 1974.

Please return this form by August 30, 1974 to:

Jo Ann Baughman
Computer Center
Oregon State University
Corvallis, Oregon 97331

Computer Center
Oregon State University
Corvallis, OR 97331

ADDRESS CORRECTION REQUESTED

OREGON STATE UNIVERSITY
COMPUTER CENTER NEWSLETTER

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FALL SERIES OF TUTORIALS SCHEDULED

The Computer Center will offer a fall series of tutorial sessions
which are designed for the relatively inexperienced computer user.
The sessions will be ordered so that information required in the
later sessions is presented in earlier sessions.

There is no fee for these tutorials but advanced registration is
required. Enrollment will be limited to the first twenty applicants.
The last page of this issue is a registration prepared for easy
return. Additional registration forms are available in the Computer
Center Office.

The Center will furnish computer job numbers for the applicants
when required for the training session. User numbers will be
distributed at the first meeting of the tutorial and remain active
until seven days following the last meeting.

Tutorials will be canceled if less than six participants enroll.
If you have any questions, call Nancy Lee or JoAnn Baughman at
x2494.

SCHEDULE OF FALL TUTORIALS

Tutorial #1.   Introduction to the Computer Center and Related
               Services (2 hours) Lecturer: Ron Davis   Room:
               Computer Center #223.

   Section 1 - October 21, 3-5 p.m.

   Section 2 - October 22, 1-3 p.m.

This session is a general introduction to the services offered
by the Computer Center. Topics to be covered include the types of
services, service hours, establishing a Computer Center account,
submitting batch jobs, the use of interactive terminals, key-
punching services, op-scanning and the use of special forms.

Tutorial #2.   Running Programs on OS-3   (One and one-half hours)
               Lecturer: Jim Sasser   Room: Computer Center #223.

   Section 1 - October 28, 3-4:30 p.m.

   Section 2 - October 30, 3-4:30 p.m.

   Section 3 - October 31, 3-4:30 p.m.

The purpose of this course is to introduce the user with the OS-3
time-sharing system including creating, editing and modifying
files or programs.

Tutorial #3.   Introduction to Interactive Basic   (2 hours)
               Lecturer: Jan Hubbert   Room: Computer Center #223.

   Section 1 - November 4, 1-3 p.m.

   Section 2 - November 5, 1-3 p.m.

This is a brief presentation of the significant features of OSU Basic available under the OS-3 operating system.

Tutorial #4.   Introduction to the Use of Magnetic Tapes   (2 hours)
        Lecturer: Jim Sasser   Room: Computer Center #223.

        Section 1 - November 7, 1-3 p.m.

Topics to be discussed are the use of magnetic tapes as a means of storage of large quantities of information. The control cards required to request and manipulate the magnetic tape files, the hardware and software specifications for tapes to be used at the Computer Center, and the physical structure of magnetic tapes will be covered. General processing procedures on tapes whose specifications are unknown and procedures for preparing tapes to be used at other installations will also be discussed.

Tutorial #5.   Introduction to the OS-3 Program Library   (2 hours)
        Lecturer: Les Richey   Room: Computer Center #223.

        Section 1 - November 12, 2-4 p.m.

Topics include the use of the program library catalog and the services provided to users. There are Fortran callable subroutines in areas such as data analysis, numerical linear algebra, differential equations, time series analysis, non-parametric statistics, regression analysis, optiminzation and many others. This session is a step by step guide to the use of the references for these libraries as well as the use of the routines themselves.

PLATO DEMONSTRATION

Plato is returning to Oregon State University on October 25th as a part of the conference of the Pacific Northwest Association of College Physics teachers which will be held in Corvallis on October 23-25. There will be a formal talk at 10 a.m. in Weniger 151. The terminal will be available the remainder of the day for individual or small group use. Contact Dr. Clifford Fairchild at x1631 for additional information.

SCHEDULE OF VIDEOTAPE SERIES

The Computer Center announces the showing of "Introduction to OS-3" and the "Introduction to FORTRAN" videotapes beginning Monday, October 14. Any student or faculty member may attend the showings as listed on the next page.

4.

Introduction to OS-3

| Oct 14, 15, 16 | 3:30-4:30 pm | K 108J | Cable Channel 11 |
| Oct 17 | 3:30-5:30 pm | | |

<u>or</u>

| Oct. 14, 15, 16,
   17, 21 | 10:00-11:00 pm | K 108J | Cable Channel 5 |

Introduction to FORTRAN

Oct. 21, 22, 23	3:30-4:30 pm		
Oct. 24	3:30-5:30 pm	K 108J	Cable Channel 11
Oct. 28, 29, 30	3:30-4:30 pm		
Oct. 31	3:30-5:30 pm		

<u>or</u>

| Oct. 22, 23, 24, 28,
   29, 30, 31 | 10:00-11:00 pm | K 108E | Cable Channel 5 |
| Nov. 4, 5, 6 | | | |

INTRODUCTION TO OS-3 VIDEOTAPE SERIES SEQUENCE

No.	Name of Tape	Instructor	Length (min:sec)
1	Tour of Computer Center	Bob Pinneo	11:10
2	TTY Operations	Bob Pinneo	17:14
3	Introduction to On-line Operations	Tom Mahan	28:28
4	OS-3 Editor from Remote Terminals	Fred Dayton	27:35
5	BASIC	Pete Murray	23:08
6	OSCAR	Gil Bachelor	29:30
		Mary Berryman	
7	FORTRAN from Remote Terminals	Lyle Ochs	32:07
8	*CATALOG	Keith Avery	27:45
9	Debugging with RADAR	Mark Ebersole	28:30
10	The OS-3 Time-Sharing System	George Rose	47:00

FORTRAN VIDEOTAPE SERIES SEQUENCE

Instructor: Jim Sasser

No.	Name of Tape	Length (min:sec)
1	Introduction to Computers	30:30
2	Bit Structure, Part I	29:35
3	Bit Structure, Part II	31:25
4	Assignment Statements Input/Output	31:10
5	Input/Output - Format	30:30
6	Starting, Stopping, Transfer of Control	30:00

No.	Name of Tape	Length (min:sec)
7	Arithmetic IF: OS-3 Control Statements	32:00
8	Program Ex. 1; Summation and Counting	30:00
9	Summation and Counting: Logic Concepts	32:00
10	Logical IF; Prog. Ex. 2	32:00
11	Arrays and Subscripts	26:52
12	Other Types of Constants, Variables and Format Specifications	27:17
13	DO Loops	32:00
14	DO Loops Cont.	31:30
15	Nested DO-Loops Input/Output of Arrays	31:00
16	Input/Output of Arrays Cont. Programs Examples	33:00
17	Two-Dimensional Arrays: Subprogram	31:05
18	Subprograms Cont.; Other Specification Statements	33:10
19	Entering and Editing FORTRAN from Teletype	30:00
20	Entering and Editing FORTRAN from Teletype, Part II	30:30

If an instructor wishes to show the videotapes in his class at another time, the tapes can be scheduled through Classroom TV, x1905. These tapes are shown as a service to the university community.

A booklet, Introduction to the OS-3 Videotape Series (CCM-71-04), and a manual to accompany the FORTRAN videotapes, FORTRAN Programming on the CDC 3300 Under OS-3 (CCM-73-04), can be purchased in room 138 of the Computer Center.

OSU ANNUAL FACULTY TRAINING WORKSHOP

72 faculty members participated in the annual workshop held September 9-13. Courses were offered in FORTRAN, Basic, OSCAR, Graphics, Biology, Chemistry, and many discipline areas.

The following served as instructors. From OSU: Kenneth Rowe, Charles Cowan, Gilbert Bachelor, Michael Inoue, Steven McCann, Ted Hopkins, Curtis Cook, William Brandt, Richard Towey, Ze'ev Orzech and Bruce Shepard. From SOC: Gene Stringer. From OSU Computer Center Staff: Jim Sasser, Dave Fuhrer, Jeff Ballance, Jan Hubbert and JoAnn Baughman.

COMPUTER CENTER TELEPHONE NUMBERS

Computer Center users may now dial direct to telephone extensions listed below:

Accounting	2638
Job Numbers	3483
Consulting Desk	1650
I/O Room	2033
Main Office	2494

NEW OS-3 SYSTEM FEATURES

On October 1, the Computer Center changed standard line printer
output spacing to eight lines per inch. Users may obtain six or
eight lines per inch spacing by using the special non-printing
carriage control characters -- "S" and "T" for six and eight lines,
respectively. Any record written on a line printer file with S
or T as the first character will cause the respective line
spacing to be invoked. For example, inserting the control card

$^7_8$LABEL,61'S

in a job deck will cause subsequent printing to be done at six
lines per inch.

PARA, COPY, and the control mode command EQUIP allow the destination
queue to be specified for TASK files. For example, the statement
#EQUIP,10=TASK(MT1) will create a TASK file and direct it to the
MT1 batch queue. This feature alleviates having to use the SEND
command to direct a TASK file to the appropriate destination.
Another example might be:

#COPY,I=TASKJOB,0=TASK(NITE)

For a file to be submitted to the NITE queue.

A new command, SUBMIT (legal only from batch and tasks) has been
added to control mode. Any attempt to use the command from TTY's
or TV's will result in the error message:

SUBMIT IS AVAILABLE FROM BATCH AND TASK ONLY

The SUBMIT command allows users to run tape jobs during non-prime
time and to selectively stage jobs, i.e., job A submits job B if
job A terminates normally, etc. As the name implies, this command
allows one to SUBMIT a deck to a specified batch queue. The form
of the command is:

[SUBMIT{,<destination queue>}{<comments>}

(items within {} are optional).

SUBMIT creates a TASK file with the appropriate destination,
outputs a JOB card with the job number/user code of the submitting
job, and copies the records that follow (including other SUBMIT
cards) to the file until a matching

[ENDSUB

is encountered. That is, records will be copied until the number
of SUBMIT's and ENDSUB's is equal. A more complete description
with examples may be found on *NEWS.

SOME INFORMATION ABOUT INSTRUCTIONAL COMPUTER TIME

Although instructional computer time has already been allocated
for Fall tern, 1974, adjustments or new requests for computer
time can still be submitted by instructors through their department
or school coordinators. Application blanks are available at the
Computer Center Office, MCC 217.

An explanation about the process of obtaining instructional
computer time might be helpful:

A coordinator is appointed for each school or department and is
responsible for collecting requests for instructional computing
time from each faculty member in his unit. Request forms are
submitted to the Computer Center for review. Computer time is
distributed for the whole school year by a campus-wide Computer
Committee appointed by the Dean of Administration. Adjustments
or new requests are accepted each term if changes in enrollment
occur.

REQUESTS FOR COMPUTER TIME FOR UNSPONSORED RESEARCH

The Computer Center has a limited amount of funds available for
unsponsored research computing in order to support faculty and
graduate students in research activities which are not supported
by other sources.

Application forms for unsponsored research are available in room
217 (main office) of the Computer Center.

TELETYPE RENTALS FOR DEMONSTRATIONS

The Computer Center will rent teletypes and/or acoustic couplers
to users associated with the University for demonstrations, etc.

The rate schedule includes equipment rental and maintenance:

        33KSR Pro-rated @ $45/month
        33KSR Pro-rated @ $50/month
        Acoustic Coupler Pro-rated @ $15/month

There is a minimum charge of $10.

If the above equipment is not located on the OSU campus, a fee
of $8/hour for travel time will be charged for the off-campus
maintenance.

If you have any questions, please call Doug West at extension 2494.

GENERALIZED FREQUENCY DISTRIBUTION PROGRAM

*GFREQ has been revised to now provide percentage distributions
of the total respondents or the total responses to a question.
For documentation or questions please contact Les Richey, x2494.

COMPUTER CENTER SERVICES

The Computer Center offers a wide range of services to OSU staff members. The level of service ranges from making the appropriate equipment available to the staff member who wishes to do his own programming and data preparation, to providing complete management of a system designed and developed by Computer Center personnel.

Support services also offered are:

        Consulting
        Programming
        Keypunching
        OPSCAN
        Digitizing

OPTICAL SCANNING SERVICE   (OPSCAN)

The Computer Center is now offering an Optical Scan service to all user in research or instruction. Different types of reports including test scores and percentages by student in alphabetic, social security number or rank order are available. Instructional users may find the test scoring service useful. Individual student printouts, item analysis and a grade book feature are also included. OPSCAN forms are available at the Computer Center. For more information contact Sue Mills or Keggar at x2494.

USER CONSULTING SERVICES

The Computer Center consultant for all users will be available during the hours of 1:00 p.m. to 4:00 p.m., Monday through Friday in the Computer Center viewing room at x1650.

There will be a SIPS consultant, Molly Loesch, on duty for SIPS users from 1:00 p.m. to 4:00 p.m., Monday through Thursday in Computer Center 142 at x2494.

The SIPS consultant will be primarily to assist users with operational use of the SIPS system. Questions relating to technique of statistical data analysis are referred to the statistics department.

LINE PRINTER PLOTTING PACKAGE

A new plotting package has been developed for the line printer. The routines are comparable to those for the Calcomp X-Y plotter. *LPPLØT is the library containing the general purpose sub-programs. For documentation or questions please contact Les Richey, x2494.

Oregon State University

PUBLICLY AVAILABLE TELETYPES

Location	Room	No. of teletypes
Agriculture Hall	201A	1
Agriculture Hall	330A	1
Apperson Hall	309	7
Batcheller Hall	105	6
Bexell Hall	419	2
Chemical Engineering	204	5
Computer Center	228	10
Cordley Hall	2008	1
Cordley Hall	3054	1
Cordley Hall	4044	1
Covell Hall	106, 214	3
Extension Hall	206	2
Finley Hall	117	1
Gilbert Hall	206	2
Kidder Hall	76, 142, 294	8
Moreland Hall (Old Forestry)	130	1
Oceanography	172	2
Oceanography	268	1
Oceanography	328	1
Oceanography	368	2
Oceanography	444	2
Peavy Hall	282	4
Poling Hall	Conference Room	1
Rogers Hall	224	2
Rogers Hall	438	1
Sackett C	Beau Room	1
Social Science	208	1
Student Health Center	Basement	1
Student Health Center	111	1
Weniger Hall	117	1
Weniger Hall	118	1
Weniger Hall	127	1
Weniger Hall	214A	1
Weniger Hall	365	1
Weniger Hall	369	1
Weniger Hall	401	1
Weniger Hall	503	2
Weniger Hall	573	1
Wilson Hall	100	1

There are approximately 120 additional teletypes on the O.S.U. Campus. They are privately supervised by various departments. Arrangements may be made through the departments for access to their teletypes.

OPERATING STATISTICS

	August	September
Batch Logons	5066	3636
Teletype Logons	21533	18403
Total TTY Console Hours	5891	4982
Total CPU Hours	196.55	182.29
Batch CPU Seconds	182966.67	162356.12
TTY CPU Seconds	524616.46	493878.68
OS-3 Hours	455	441
Average Number of Users		
Month	23	22
Saturdays	10	8
Sundays	11	8
Weekdays	24	23
CPU/Hour/TTY User	89.1	99.1
Average Job Time (Sec.)	26.60	29.78

LOSS OF USER FILES

Loss of files usually occurs in two ways. These are computer hardware failure, or a user deleting a file by mistake.

All file recoveries will be handled by Dave Richelderfer at the Computer Center. If Dave cannot be reached, contact Ron Davis, Les Richey or the operator on duty.

COMPUTER CENTER

TUTORIAL REGISTRATION FORM

FALL, 1974

The tutorials are limited to the first 20 applicants per session.
There are no charges or registration fees for these tutorials.

Name: _____ Date: _____
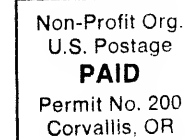
Address: _____

_____

I wish to attend the following tutorial(s). Indicate by tutorial
number and section. (Tutorial number listed in schedule)

To help the instructors tailor the tutorial to your needs, please
indicate your purpose(s) for attending each tutorial.

<u>Tutorial</u>

<u>Number</u>	<u>Section</u>	<u>Purpose</u>
_____	_____	_____
		_____
_____	_____	_____
		_____
_____	_____	_____
		_____
_____	_____	_____
		_____

Return this form to: JoAnn Baughman
                      Computer Center

Computer Center
Oregon State University
Corvallis, OR 97331

ADDRESS CORRECTION REQUESTED

OREGON STATE UNIVERSITY
COMPUTER CENTER NEWSLETTER

TABLE OF CONTENTS

CYBER 73-14 COMPUTER SYSTEM TO BE INSTALLED

We are pleased to announce that a Control Data CYBER 73-14 Computer System will be installed at the OSU Computer Center in January 1975. The CYBER is a substitution for the CDC 3500 which was planned for the same time period.

The CYBER system includes the CPU with 65K words of memory, line printer (512), card reader (405), card punch (3446), two 844-21 disk drives (approximately 200 M characters of storage), and four 607 magnetic tape drives, all with their respective controllers. Multiplexers and data set controllers for 64 interactive terminals (asynchronous) and 16 batch terminals (synchronous) provide remote access to the CYBER system. The CYBER system will operate under the KRONOS Time-sharing Operating System which provides concurrent access by interactive, batch, and remote batch users.

This new acquisition was made possible by an offer from Control Data to substitute the CYBER model for the 3500. The CYBER offers significant advantages over the upgrade of the 3300 to 3500. In addition to providing significantly increased computer capability, the CYBER 73 will also allow the Computer Center to process much larger jobs that have been feasible only on similar large-scale computers at other non-state agency installations. The increased speed and large memory size of the CYBER is not only important to OSU's research programs, but will also allow increased computing in support of instructional programs.

The substitution of the CYBER 73 will cause no disruption of service to current CDC 3300 users, since Control Data Corporation has agreed that the CDC 3300 will remain on site for a minimum of 24 months on a "maintenance only" charge basis. This time period should be sufficient for conversion of instructional, research and administrative applications.

Whereas the CDC 3300 is nearly at the end of its life on a technological basis, the CDC CYBER is expected to have a useful life that will extend into the 1980's. It is modular in design and can be upgraded to at least double its present computational capability. This modularity is a significant factor in extending the useful life of the CDC CYBER.

Announcements on charging rates under the KRONOS Time-Sharing System will be made after detailed benchmarks have been run and analyzed. As some of the computing load is transferred from the 3300 to the CYBER, it is planned that rates on the 3300 can be

significantly reduced. (Until now there has been insufficient computer capacity on the 3300 to lower prime time charges.) Thus it is expected the CYBER System will result in lower per job computer charges for jobs run on both the CYBER and 3300. Some free time will be made available on the CYBER to assist users in program conversion.

Training workshops to introduce users to the KRONOS operating system are now being planned during winter term. Please indicate your interest in attending these workshops by returning the form on the last page of the newsletter. This will assist the Center in planning the number of tutorial sessions that will be held.

TUTORIALS WINTER TERM

The Computer Center will offer a series of tutorials winter term. The exact times will be announced in a later newsletter. The areas will be Sips and Graphics on the 3300. In addition, there will be workshops introducing users to the CYBER 73, as mentioned above. If you are interested in attending these tutorials, please fill out and return the form on the last page of the newsletter.

HOLIDAY OPERATING SCHEDULE

The Computer Center will be closed for the holidays at the following times:

December 24 at 5:00 p.m.

December 25 all day

December 31 at 5:00 p.m.

January 1 all day.

Days not noted above will have business as usual.

──────────── USER OPERATIONS & SERVICES

EXPANDED KEYPUNCH SERVICE

As of Monday, November 25, 1974, all completed keypunch jobs will be in the I/O room for pickup. If you wish to be contacted when your job is finished, then leave your phone number with the keypunch

job and we will try to call you (once or twice) when the job is done.

This change will allow the keypunch girls to work without interruptions and will allow users to pick up their jobs after 5:00 p.m. when the keypunch room is closed.

OPTICAL SCAN TEST SCORING SERVICE

After our first full term of offering the test scoring service we can safely say it is a success. At this point most of the major program bugs have been found and corrected. In most cases, suggestions for upgrading the programs have been implemented.

Test scoring passes through three stages: Optical Scanning, computer scoring, and a limited verification of the results. Final verification is left to the instructors. Outside the door of Room 224, Sue Mills's Office, you will find a bulletin board indicating the progress of your test.

Next term we hope to again try to use the GRADE BOOK program. Please note that if you plan to use this program, you must have each student code in his unique identification number in the space reserved for the Social Security Number (SSN) on the Optical Scan sheet.

For more information, call x2494 or stop by Room 224 and ask for Sue Mills or Keggar.

407 Leaving

Due to age and lack of use the IBM 407 Lister will be discontinued. The acquisition of the CYBER provides users with the two printers, one on the 3300 and one on the CYBER 73 which should compensate for the 407.

CHANGE IN CHARGES FOR SPECIAL FORMS

Users are no longer charged $1.00 for each set up generated by a forms message.

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OCCE ANNUAL CONFERENCE

The Oregon Council for Computer Education and the Oregon Association for Educational Data Systems held their annual conference at Portland Community College. Dr. Zev Orzech, Economics department at Oregon State University, was one of the speakers. He discussed Computers in Social Science and included examples of Computer Simulations and analysis of data sets in Anthropology, Political Science, Social Science and Economics. The material he discussed was developed or implemented by the Conduit/Oregon staff.

CONDUIT/OREGON

In a continuing effort to improve the development and dissemination of computer based curriculum materials the CONDUIT/Oregon staff is working with author/teachers in Oregon in the development of materials in Chemistry, Anthropology, Economics, Mechanics and Psychology. These authors are using guidelines designed to aid in the development of well-documented, easily transportable computer curriculum materials.

The guidelines were developed by CONDUIT and are based on a three year experiment on the transfer of computer materials. For more information contact JoAnn Baughman CONDUIT/Oregon Curriculum Coordinator at 754-2494.

USAGE INFORMATION

OPERATING STATISTICS

	October	November
Batch Logons	9926	12353
Teletype Logons	30454	35659
Total TTY Console Hours	8164	10214
Total CPU Hours	228.77	221.58
Batch CPU Seconds	207362.05	186221.81
TTY CPU Seconds	616225.49	575476.47
OS-3 Hours	455	441
Average Number of Users		
Saturdays	13	17
Sundays	16	22
Weekdays	30	37
CPU/Hour/TTY User	75.5	56.3
Average Job Time (Sec.)	20.40	15.86

NEW BUSINESS MANAGER

The Computer Center is pleased to announce the appointment of
Wayne Knudsen as Acting Business Manager for the Computer
Center effective November 25, 1974. Wayne is assuming the duties
of Tom Brantner, who has resigned to accept a new position in
Portland.

COMPUTER CENTER

TUTORIAL REGISTRATION FORM

Winter, 1975

The tutorials are limited to the first 20 applicants per session.
There are no charges or registration fees for these tutorials.

Name: _____ Date: _____

Address: _____

         _____

I wish to attend the following tutorial(s). Indicate by tutorial
name and section.

To help the instructors tailor the tutorial to your needs, please
fill in completely for each tutorial.

Tutorial	Beginner	Intermediate	Advanced
3300			
SIPS			
Graphics			
CYBER 73			
Introduction to KRONOS			
Interactive FORTRAN			
OTHER:			

Please list the languages you have experience in: _____

_____

Is your purpose for taking these tutorials based on a Research or
Instructional need? _____

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Oregon State University
Computer Center
Corvallis, OR   97331

ADDRESS CORRECTION REQUESTED